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WATER POLLUTION CALLED SERIOUS IN MAJOR CITIES

Hanoi KHOA HOC VA DOI SONG in Vietnamese 16 Mar 77 p 9

[Article by Nguyen Dang Duc, MS in Medical Science, the Institute of Hygiene and Epidemiology: "Protecting the Environment: Combating Water Pollution"]

[Text] Water is considered to be polluted when changes of a physical, chemical, or biological nature occur due to the excessive discharge into the water of solid, liquid or gaseous wastes, especially toxic substances which harm the health of man, gradually kill the various forms of aquatic life and cause the spread of diseases of the intestinal tract, such as diarrhea, dysentery and typhoid fever. Water pollution also includes the discharge of various types of hot water into bodies of water.

Sources of water become polluted mainly as a result of not taking appropriate measures to treat the waste water of everyday life, industry, and livestock and poultry farms. The widespread use of large quantities of various types of chemical fertilizer, various insecticides, herbicides and rat poisons and untreated human wastes and livestock manure is also causing concern among persons engaged in protecting the environment. Water pollution and air pollution are two major problems to which particular attention is being given in the industrially developed countries. In these countries, industrial wastes are the primary cause of water pollution; water is also polluted by oil, radioactive substances and the water used to cool power generating centers. Industrial wastes containing organic compounds, such as ABS (Alkyl-benzene-sulfonate) synthetic detergents, and chunks of foam float on the surface of rivers accumulating disease causing bacteria, impeding oxygenation and reducing the biological cleansing ability of river water. In our country, the spraying of insecticide has become a common practice over the past 20 years in farming at agricultural cooperatives as well as state farms. Insecticides and herbicides are much more toxic than synthetic detergents, they are not very bio-degradable and they accumulate for many years in the water. Detecting them is a very complex matter requiring such sophisticated measures as thin layer chromatography, gas chromatography, and infrared spectrometry. Phenol at a strength of 20-30 mg/liter of water can kill fish. Water pollution resulting from light hydrocarbons, such as gasoline and diesel fuels,

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causes the water to emit a distinct odor. The majority of water pollution is caused by organic wastes from food processing plants, paper mills, oil refineries and chemical plants dumped into sources of water during operation. Organic pollution generally occurs when the body of water is unable to cleanse itself because too much organic matter is being dumped into it; as a result, the need for oxygen increases at a time when the oxygen concentration in the water is decreasing, consequently, it is impossible for aerobic bacteria to be active because anaerobic bacteria are strong active, the nitrogen-sulphur cycle cannot be completed (ammoniac, skaton, mercaptans, hydrogen sulphur, methane gas, and so forth) and the water becomes black and fowl smelling. Polluted water also contains multi-ring aromatic hydrocarbons, such as 3-4 benzopyrine, phluoren and so forth, which can cause cancer. In addition, industrial wastes which pollute the water can also be chromium compounds in the +6 state which accumulate within the body and, over a long period of time, pose the danger of poisoning and cancer.

At present, our large industrial areas in Viet Tri, Thai Nguyen and Bien Hoa also show signs of water pollution (the Cong, Cau and Lo rivers). The level of pollution is still very low but we absolutely must research and gain an understanding of this problem soon so that prompt preventive measures can be taken.

The pollution of water and land by sewage from the sewer systems of the municipalities in our country, including Hanoi (the To Lich and Kim Nguu rivers) and Ho Chi Minh City (the Cho Lon, Saigon and Gia Dinh rivers) can be called very serious. The water at these places is pitch-black and emits a bad odor; these places contain countless dangerous germs and are the source of epidemics of diseases of the intestinal tract.

For the next several years, the pollution of the environment and water pollution, in particular, in Vietnam will continue to be biological pollution caused by the problem of not treating or using human wastes and livestock manure very well. We must accelerate the construction of and improve privies, wells and sanitary bathhouses in the countryside. The public health and agricultural sectors must closely coordinate in the research of sewage treatment measures. In the municipalities, cities, towns, industrial areas, new economic areas and so forth, there must be good water supply and drainage projects which receive regular quality control inspections to insure that they meet chemical as well as bacteriological sanitation standards; the various types of commode-style privies and two-compartment privies must gradually be replaced by cess-pools and sewage discharge projects must be repaired. Hospitals must have systems to treat waste water before discharging it into rivers and lakes in which fish are being raised or before it is used to irrigate fields. Slaughterhouses must be moved to the outskirts of the municipalities.

EAST GERMANY

DEPUTY MINISTER ON NEED FOR KEEPING WATER CLEAN, USABLE

East Berlin PRESSE-INFORMATIONEN in German 28 Apr 77 pp II-III

[Article by Rudolf Miehke, deputy minister for environmental protection and water management: "Cleanliness of Water--An economic requirement"]

[Text] According to calculations to date, by 1990 water requirements of the population will rise by two-thirds, of industry by more than one-third and of agriculture by even two and one-half. On the other hand the natural supplies will remain essentially constant--water in creeks, rivers, lakes and subterranean reservoirs from which we obtain drinking water for the people and industrial water for industry and agriculture. Measures for keeping the waters pure, therefore, have the greatest economic importance.

The growing requirements for water can only be met by steadily increasing multiple use of water. Multiple use includes thorough cleaning of the water before it can be returned to the natural cycle. The cleaner it is when drained off, the lower the damages to the bodies of water in the first place, and in the second place the lower the costs for renewed purification.

The costs for purification as unobjectionable enterprise water from polluted water rise markedly as a function of the degree of pollution. Purification of water in quality class IV (badly polluted), for example, costs eight times as much as for quality class I (clean). And industrial waste products still influence the quality of the water in about 40 percent of our waters.

On the other side, from an economic point of view, extensive purification of water is cheaper than obtaining usable water from strongly polluted bodies of water since to do this very complicated purification processes are necessary. And naturally waste products also influence the life of plants and fish in our waters and adversely affect recreation possibilities. Thus exhausting all possibilities for waste water purification is one of the principal duties of water users.

Increasing Efforts by Industrial Enterprises and Communities

Various initiatives by enterprises and communities in recent years have resulted in the fact that in spite of substantial increases in waste waters and waste products the quality of the water in moving waters remained almost constant and in some river courses the water became cleaner. The enterprises of the brown coal industries are among those making great efforts to keep the waters clean. In this case because of drainage measures about 3.4 million cubic meters of water are produced every day. More than a third of it is used in the refining plants and power plants, the rest, purified, is fed into the rivers. In some areas this water, especially in dry periods, substantially improves the water balance, for example the Spree in the Cottbus area.

Numerous enterprises have changed over to the so-called closed circulation of water in which the water necessary for production is cooled and purified in the enterprise's own installations so that it can be used again and again. The daily water requirements of about 250,000 cubic meters in the Schwarze Pumpe [black pump] combine VEB for example are exclusively met by waste water from mines which is purified in the combine's own system. By beginning to use a settling tank for the purpose of reusing wash water for gravel it is no longer necessary to take from the public water system the roughly 1,500 cubic meters of water every day for the Ottendorf-Okrilla gravel plant VEB.

It is especially important that no impurities of any kind such as iron and other metals, oils and fats, phenols or acids and lyes get into the water. The Schwedt petrochemical combine VEB is among the exemplary water users. Although quantities of impurities are produced in the combine, the complex filter plant guarantees impurity-free waste water. The quality of the water of the Oder remains unimpaired.

Water Control With Higher Responsibility

Many new filter plants have been built in the past few years. They purify 1,000-10,000 cubic meters of waste water per hour. In addition to the construction of new plants in Berlin, Rostock, Potsdam, Eisenhuettenstadt, Halberstadt, Halle-Neustadt, Nordhausen, Gera and Dresden, the capacity of existing plants is to be expanded by rationalization. The clarification plant in Leipzig-Wahren for example has twice the output since being rebuilt. At the same time the purification effect was improved with the installation of new technology. In the matter of water protection the cooperation of enterprises, cities and communities in the framework of territorial rationalization takes on great importance. Building common clarification plants for both municipal and industrial waste waters and using them jointly or expanding existing plants for joint use has been proven effective.

Special responsibility for keeping our waters clean falls to the state water control authority. Its controls are to help systematically reduce the

pollutants in the waste water and to prevent water averages. It very systematically controls enterprises which feed waste water into the waters, especially those in the case of which dangers for the waters can rise because of pollutants.

In this regard it is a matter of involving a wide circle of helpers. In many enterprises such as the Bitterfeld chemical combine VEB the questions of water use and the observance of critical values of water quality are a component of the competition program and thus a cause for concern by every worker. Indices for water requirements and waste waters are in this connection allocated as far as the brigades. Such examples should be generalized, for the protection of our waters is a matter that affects everyone. What great importance society attaches to keeping our waters clean was demonstrated by the fourth congress of the People's Chamber on 7 April of this year which established new legal provisions for this.

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WATER MANAGEMENT MINISTER DISCUSSES EFFECTIVE WATER USE

East Berlin PRESSE-INFORMATIONEN in German 28 Apr 77 pp I-II

[Article by Dr Hans Reichelt, Council of Ministers deputy chairman and minister for environmental protection and water management: "Effective Utilization of Water--A Requirement of Economic Discretion: Economic Water Usage Is Part of Intensification"]

[Text] The directive of the Ninth SED Party Congress to the Five-Year Plan for the development of the GDR economy in the period 1976-1980 gives water management in our republic the task of "aiming its efforts at supplying the population, industry and agriculture steadily with drinking water and industrial water, respectively. This requires economic management of water resources with minimal social outlay and effective use of water management installations in all sectors of the economy." Thus, water management contributes in a very diversified manner to realizing the chief task in its unity of economic and social policy.

In 1980 the demand for water in our republic will be about one-fifth higher than in 1975. By 1990 figures indicate an increase of 60-65 percent, thus, 4-5 percent annually. In contrast to that, the natural water supply will remain virtually constant; beyond that it is subject to pronounced fluctuations due to time and location. Water supplies are, moreover, not always available where they are needed for the growing demand. Thus it is a matter of building drinking and waste water purification plants, laying new pipe systems, erecting barrages, laying-up basins, extensive conduits and opening up additional ground water reserves.

Use Water Several Times

The building of barrages and laying-up basins, conduits and long distance lines takes over agricultural areas under cultivation, thus removing them from production. Even residential buildings, factories, railways, streets, indeed entire villages must often be rebuilt at another location. This likewise requires significant outlays of financial means and material. From this it follows that investments for water management are rising faster than average for the economy. The enormous basic assets of water management

plants in all sectors have a value of about M 45 billion, that is roughly 12 percent of all basic assets in the production sectors of our economy.

To be sure water, vis-a-vis other raw materials, has an advantage--it can be used several times. That is indispensable not only in dry periods, but is more and more becoming an ongoing concern. Water from Saale and Elster is already being used seven times with average precipitation. This imposes high demands especially on waste water purification. Thus even in this area the outlays are rising substantially. But if the waste waters are sufficiently purified then up to 75 percent of the costs can be saved which are necessary for the repurification of the unpurified water in a following enterprise. In this connection the building of joint waste water treating plants is gaining in importance, in which case the advantages of territorial rationalization are utilized.

What Erich Honecker, secretary general of the SED Central Committee forcefully called for at the fifth meeting of the Central Committee likewise holds for economic use of water: achieve high quality and effectiveness in our work. Therefore, it must become a matter of course to regard effective utilization of water in all sectors of the economy as a component of socialist intensification. This requires a variety of scientific-technical measures. In that way we will achieve better use of the basic assets and greater effectiveness in social work. At the same time we will reduce costs and save investments, among other things, for additional storage facilities or conduits.

Buna workers, for example, with the use of new technologies and advanced norms, normative provisions and indices in socialist competition in 1975 vis-a-vis 1971 saved 2,500 cubic meters of water per million marks of goods production and thus saved M 3,340. Enterprise costs for water purification was reduced by M 4,625 per million marks of goods production. Applied to overall goods production of the Buna works the savings thus amounted to M 13.9 million in the period 1971-1975.

New Ways With Science and Technology

In the current five-year plan the task has been set to reduce the specific water requirements in industry by 20 percent. The significance of this plan becomes clear if one considers that over 16 million cubic meters of industrial water must be made available to industry every day. The water is used as follows: 70 percent for cooling, 20 percent for production (processing water) and 10 percent for boiler feeding. The demand for cooling and processing water, above all, must be reduced to an economically justifiable amount. The use of cooling-water circulation alone in place of traditional continuous operation reduces water requirements up to 95 percent. Systematic use of less water often achieves a great economic value. Changes in water pressure, the cross-section of the conduits, temperature or other factors cause the demand for water to decline.

But that also requires the purposeful implementation of scientific-technical measures. Thus, completely new ways must be pursued and methods without water or using little water must be developed. Large tasks and possibilities are the result for the industrial processing engineers and designers, for innovators and rationalizers in almost all sectors of industry, especially machinebuilding.

For us it is of incalculable value to utilize the rich experiences of the Soviet Union in the matter of efficient water management. This is true of the use of new methods or the improvement of existing methods for reducing the specific water consumption per unit of production as well as for better water purification in circulation. For example, in the Soviet Union purified municipal waste waters are being used as industrial water for industry. A Moscow heating power station uses 20,000 cubic meters of purified waste water daily which until now was fed into the Moscow River. In Dresden a year ago Soviet scientists reported about these and other experiences at the CEMA symposium dealing with technologies free of or low in waste products. In all, the USSR offers a great wealth of experiences which we as well as all CEMA countries are extensively utilizing.

The economic use of water and the exact observance of critical values for waste waters are an element of the competition programs of the collectives in industries using water. The competition for the title "exemplary enterprise in water management" in addition creates new possibilities for additional furthering of the workers initiatives:

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CELJE CINKARNA CONTINUES TO CAUSE MAJOR POLLUTION

Maribor VECER in Slovenian 19 May 77 p 3

[Commentary by Janko Volf: "The Zinc Factory Once More"]

[Text] After hardly 3 weeks I have to return again to the Cinkarna (Zinc Factory) in this column. The reason is not difficult to fathom. Hardly had the discussion concerning the intended construction of a new facility for the production of sulfuric acid been put to rest somewhat (particularly with respect to the fear of the effect that this would have on air pollution), news was received from the Cinkarna about new water pollution. At first this came from the titanium white factory, and later, highly toxic substances from the copper sulfate facility were to blame.

Both cases caused a sharpening of criticism from citizens and the public in Celje and Lasko against the people in both facilities who are responsible for the pollution, and the attitude of the Cinkarna to environmental protection is highly dubious. It appears that if the Cinkarna continues as it has been doing, it will become widely known as the worst environmental polluter in Slovenia. The latest ecological blunders are even more deserving of censure, since, it appears, the equipment was not even suitable, to say nothing about the negligence of individuals. We hope that investigation will disclose precisely who is to blame and to what extent, and that when this happens, it would not be sloughed off with general criticism alone.

What bothers and disturbs a person about the whole affair is the very question of how is it possible that after having been criticized with respect to its attitude towards the environment for many years in Celje and by the Slovenian public at large, it is possible at the Cinkarna for case after case of major pollution to occur. At times it appears that some of these ever sharpening criticisms are not taken too seriously; however, people are not criticizing because they have a grudge against the Cinkarna; rather, they are disturbed by its attitude and the damage that it causes to the environment.

We can also ask how the Cinkarna has actually made efforts to get antipollution equipment with respect to the construction of its new facilities, and how the work and supervision of critical points has been organized. We

think about the story concerning the shortage of lime for neutralization in the titanium dioxide plant, and about the question on what is going to be done with the copper-contaminated waste waters which were released via the canal into the river last week at the copper sulfate facility.

One thing is clear without a doubt: the residents of Celje are not going to stop criticizing and will continue to put pressure on the Cinkarna as long as it does not do everything it ought to do with respect to environmental protection. The Cinkarna can gain citizens confidence only through actions.

CSO: 2800

BRAZIL

SEMA'S FAILURE TO CONTROL POLLUTION CRITICIZED AT CONFERENCE

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 16 Apr 77 p 52

[Article by Celia Maria Romano]

[Text] At the conclusion of the 2d National Conference on Environment in Sao Jose dos Campos, the former mayor, Figueiredo Ferraz, yesterday criticized SEMA's lack of pollution control and the slowness with which Brazil's pollution problems were being solved. Those attending, in a conference room for about 500 people, besides Ferraz were experts in nuclear energy, urban planning and economics there to discuss energy resources, i.e., solar energy, atomic waste, the effects and dangers of plutonium and other subjects.

The closing acts of the conference were presided over by the Special Secretary on Environment, Paulo Nogueira Neto, who announced projects for combating pollution that are under study in the federal sphere. Subjects related to energy resources also came under scrutiny in view of the interest in protection of the environment as in the case, for example, of the concern registered by the former chairman of BNH, the economist, Rubens Vaz da Costa, with respect to atomic waste and the handling of plutonium. Alternatives to nuclear energy were widely discussed yesterday at Sao Jose dos Campos, as, e.g., solar energy that was defended by the professor from the Federal University of Paraiba, Cleantho da Camara Torres, who believes this natural resource to be the principal alternative for the future.

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CONFERENCE ON POLLUTION GENERATES DISCUSSION

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 16 Apr 77 p 52

[Text] The final meetings of the 2d National Conference on Environment in San Jose are after 4 days succeeding in stirring up controversies among the professionals attending by virtue of the high level of their achievement and by the scholarly presentations of the subjects discussed. Over and above this, however, was the striking interest in the positions taken openly by some of the participants in the country's pollution problem. With regard to nuclear energy, e.g., the engineer Rubens Vaz da Costa, defended the treaty between Brazil and Germany as the only alternative for Brazil to avoid, for short periods, reduction in power consumption and setbacks in its development. The former mayor, Figueiredo Ferraz, labeled as an aberration the concept of evaluation of the country's growth in terms of the gross national product [PNB] that would identify "the sum of the good and the bad, the service and the disservice" from one year to the next. The former mayor continued: "As long as economic development is emphasized, an enormous decrease in the ecological potential of the country will occur." Environment is only introduced in the PNB as an economic value; the forests are only considered wealth when exploited and health is no longer wealth but a disease for the selling of medication." Figueiredo Ferraz also made an exception of industrial energy when the domestic potential was not yet completely developed: "We abandon classic methods in order to adopt certain kinds of solutions that we do not perhaps even need."

"We are creating an immense head while the rest is atrophying," Figueiredo Ferraz said in his speech, "by concentrating on large demographic concentrations and resources in the southeast region to the detriment of other areas in the country far from the availability of these resources." The former mayor defended decentralization of the Sao Paulo region as the best method of controlling pollution since concentration causes excessive industrial use in a physically small and saturated space as is the Rio-Sao Paulo axis. "The national conscience with respect to pollution problems already exists," he said, "but administrative actions are being carried out very slowly. SEMA should be given the means of control as proof of the existence of its

power." Ferraz regretted the hold that romantic and lyrical ideas have over real pollution control." "Being elegant is no help in measuring air pollution in Sao Paulo, nor in creating ecological stations when we don't have the tools to prevent what is occurring."

"Development while spoiling the environment is not development," Figueiredo Ferraz said in a presentation on that subject in which he gave a complete explanation of the effects of growth concentrated in the southeast of the country, which in its great consumption of power exhausts the nearest available resources, forcing the adoption of new energy alternatives. Nevertheless, he said, the unbalanced concentration and its part in production in the country do not justify a large portion of the Sao Paulo population dying of hunger. The growth being achieved in other areas would bring about a rationed development of the country's natural resources. Depletion of these resources, because of excessive concentration of capital goods and industrial consumption, Ferraz said, may produce distortions like the fact that the hydroelectric power potential is 180 million kilowatts but we utilize only 18 million kilowatts.

But Paulo Nogueira Neto, in presenting SEMA's plan for combating pollution announced a series of studies and projects being undertaken, as: the first ecological mapping of Brazil, the setting up of ecological stations for research workers (eight are in the process of being built), the study of the creation of a fund for the environment with resources coming from taxes or duties and the drawing up of a law or regulation, specifying regions for the location of industries considered extremely dangerous to the environment and to the population.

Nuclear Plants

The effect of nuclear plants on the environment was discussed by the economist, Rubens Vaz da Costa, with respect to the dangers of plutonium 239, the first polluting agent created by man. Nevertheless, the former chairman of the BNH defended the implementation of the nuclear treaty between Brazil and Germany when, according to the provisions that he presented, in the year 2000 one-third of the power generated in Brazil will be nuclear. Because of this, he said, Brazil is behind in the construction and the use of nuclear plants and Rubens Costa considers any postponement of the nuclear treaty intolerable. In case that happens, he pointed out, Brazil will run the risk of being forced to ration power consumption and see a drop in growth.

Rubens Costa said, moreover, that until 1985, 8 percent of the power generated in Brazil will come from the Angra dos Reis nuclear plants. From then until the end of the century half of the increase in power will come from nuclear reactors. Hence, according to his predictions based on studies on this subject, there will be 24,000 nuclear reactors operating in the world, producing 15 million kilos of atomic waste.

Atomic waste, Rubens Costa said, is very deadly and the life of plutonium is estimated at 24,000 years. Since nothing, moreover, is known about its effects, an ideal way has not been discovered for resolving the problem of atomic waste. Final disposition of this waste, or rather storing it, should be prohibited in the opinion of Rubens Costa, but our development will not permit us to abandon the idea of nuclear energy: the importance of nuclear reactors for development varies in direct ratio to the consumption of energy or rather a 10-percent increase in the PNB today corresponds to 8 percent of the energy consumed, he pointed out.

Solar Energy

Therefore, although the relevance of other energy projects are recognized, such as alcohol and nuclear, the founder of the solar energy laboratory at the Federal University of Paraiba, Cleantho da Camara Torres, pointed out the importance of solar energy for underdeveloped regions. According to the professor, within 8 years the solar cell will have no competition from other energy systems. This system would be second or third in priority in terms of cost in the future. "The greatest advantages of solar energy systems will be its abundance and its preservation of the environment."

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BRAZIL

STUDY ON POLLUTION OF WATERS TO BE INITIATED BY DECEMBER

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 21 Apr 77 p 17

[Article by Salvador]

[Text] By December of this year the Special Secretariat on Environment is to make an overall study of the country's principal estuaries and bays for investigating the problem of contamination by heavy metals, the secretary, Paulo Nogueira Neto, announced yesterday in Ilheus where he participated in an Ecology Seminar of the Cacaueira Region. He added, moreover, that the study should be carried out in the National Institute of Technology.

Nogueira Neto also said that, with a view to a target date of the end of the year, eight ecological stations are being built in the country planned by SEMA, including Raso da Catarina in Northeastern Bahia. With respect to the problem that arose with the appearance of the 100 Indians remaining from the Pankarareh group who live in the locale, the secretary is said to have talked with Funai, and the solution found was to offer work to the Indians in their own ecological post so that they may survive without hunting in the region.

Tordon

The special secretary on environment confirmed, moreover, that SEMA does not have the authority to intervene in the licensing of the manufacture of the Dow Chemical agricultural pesticide Tordon 155 in Bahia. He pointed out that this should come under state jurisdiction. He added, however, that SEMA should establish safety measures for the operation of factories that produce pesticides.

Furthermore, the Biological Institute of Bahia is undertaking a study in the municipality of Ibicui in Southeastern Bahia where the use of Tordon is generalized, by analyzing material collected from 200 head of cattle that died of a strange disease. Specimens of the material will be sent to the Sao Paulo Biological Institute for toxicologic examination.

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BRAZIL

INADEQUACY OF SANITATION PROJECTS IN BAY AREA CRITICIZED

Rio de Janeiro JORNAL DO BRASIL in Portuguese 3 Apr 77 p 30

[Article by Nelly Coelho Rodrigues]

[Text] Pollution in Guanabara Bay can even be considered an unsolvable problem, because of the absence of any priority for basic sewerage works--principally in the Baixada Fluminense where its drainage basin is located--that may be the only way to eliminate an enormous collection point for sewage and trash.

As long as this region does not have a sewerage system and the trash produced continues being carried toward the sea, via rivers, the situation will continue as it is: close to 350 tons a day of sewage--scarcely 10 percent is treated--dead animals, fuel, wood, tin cans, plastic bags and even whole pieces of furniture will float in the bay waters, and the wastelands and river banks will be a chaos of heaps of trash.

Over the years government agencies have had the responsibility for eliminating pollution. Work groups were organized, countless studies and projects were made and published and several technicians were sent abroad in an attempt to acquire the know-how needed to solve the problem but to date no solutions are in sight.

Its own director of the Department for Pollution Control of the State Engineering Foundation for Environment, engineer Vitor Barbosa Coelho, considers the problem complex and admits that the basic sewerage project of Baixada Fluminense "is one of the most difficult to solve mainly because of the large sums of money needed for its execution."

The four main causes of pollution in the bay are trash, sewage, industrial wastes and oils. Pollution from trash comes from material thrown out in towns that have no sewerage systems nor organized domestic collections, but Rio de Janeiro, where the service exists, also adds to the problem since a large amount of its trash ends up on the shores of the bay (across from the Hotel Safari in Rio Petropolis) that floats out to sea when it rains.

The existence of a large number of clandestine dumps, mainly those on the river banks or on the bay itself, has been a concern of the naval police, but according to an official of the Port Authority, "they grow like rats and it is very difficult to control their proliferation, chiefly because the trash provides an excellent source of money for many people."

The largest secret dumps are located near Via Dutra in Rio Petropolis and small shantytowns grow up around them.

"And so there is no way to control bay pollution," a naval police sergeant said, "this then is a vicious circle: the trash attracts the shantytown dwellers who end up moving in next to the dumps and the sewage from the shacks even adds to the pollution problem."

Sewage

With respect to pollution from sewage, the engineer Vitor Coelho of FEEMA said that the bay is affected even today by the dumping of 350 tons daily, of which scarcely 10 percent is treated.

With the opening of the undersea drainage field at Ipanema, the engineer observed that pollution in the southern zone was practically eliminated, "since it benefited a large portion of the bay waters, improving the beaches in that area by 90 percent, referred to as colimetrics." According to him, pollution in the southern zone is now limited to a few rivers, notably the Carioca, that debouches at the Rua Barso do Flamengo elevation and even this gets some sewage.

With respect to the northern zone, Mr Vitor Coelho said, moreover, that total control is a long way from being attained, mainly because the last section of the North Interceptor Project has to have about 40m² to take care of a 55m³/second flow which corresponds to a quarter of the flow from the Paraiba River. Because of this it is a very difficult operation.

According to technicians, of the 10m³/second flow of residual water flowing into the bay, in the northern zone alone, 70 percent is from domestic sewage and 30 percent industrial. A small part--10 percent--receives secondary treatment in filtering stations and the rest is filtered through septic tanks or flows in its raw state in the storm sewers.

Waste

Rivers are the principal source of sewage, refuse and industrial waste in the bay, especially the Sarapui, Meriti, Pavuna and Timbo rivers on whose banks and shores the waste accumulates along the length of the river. This accumulation is an indication of the authorities' lack of attention to the problem, and one of the techniques of the group opposed to bay pollution is the argument that "if rivers received adequate treatment and a periodical cleanup, the bay would not be in this filthy state."

The Pavuna River crosses Nilopolis and on its banks are found the municipal garbage dumps. Shortly before it reaches the bay, it joins the Meriti, which also carries great quantities of debris and at times of low tide these collections form a large lagoon. It is at this point that industries and gasoline stations dump grease and oil resins that accumulate in mounds or form a kind of black lake. On the left side of the Pavuna River near Via Dutra, there is a vast clandestine garbage dump where children, adults and vultures come to salvage whatever would bring them the most profit.

The Pavuna waters, depending on the area through which they pass, acquire different tonnage. In Sao Joao de Meriti close to the garbage dumps, is the Sao Joao de Meriti slaughterhouse that butchers about 400 steers a day. There are waste products and the leftover blood of the slain animals that passes through a drain, and on top of a permanent foul odor, there is a huge red slime that lies mixed in with the water.

In the Sarapui River, there's no need to wait for low tide to be conscious of the trash and sewage. Its waters have a strong putrid odor from Nilopolis and Sao Joao de Meriti to the bay. On the other hand, one of the convenient arguments over the issue of pollution of the bay is the most polluted river, the Faria Timbo, that carries waste from Bonsucesso, Jacarepagua, Meier and Manguinhos.

Farther on, the Timboim River carries accumulated waste from Cordovil, Bras de Pina and Parada de Lucas, but at the end of Rua Bela at the entrance of No 1381, the pollution is the worst. At this point, there are in addition to the slum town of Parque Alegria, several factories that make plastic materials and chemical products that dump all kinds of waste products into the canal.

Oil

The Port Authority, by virtue of the naval police, is in charge of the supervision of the dumping of oil in the bay, which is a practice of ships that wash out their tanks, generally at night, in total disregard of Law 5357 which prohibits "vessels and maritime or river terminals of any kind, foreign or national, to throw trash or dump oil in the water anywhere within a 6-mile radius of the Brazilian seacoast, rivers or lagoons."

If there were in Rio an enterprise that might profit from used oil, all the oil taken from the engines of vehicles would be carefully guarded by the owners of gasoline stations and factories because it could be turned into a profit.

Nova Iguacu

The mayor of the largest municipality in Baixada Fluminense is showing concern over the problem; but he is also not optimistic about what is being said about sewerage. Professor Rui Queiros discovered that "to get money

for sewerage works in Nova Iguacu, one must be a politician and have considerable influence but we are right now sending a study to Fundrem from which we hope to obtain funds for the implementation of sewerage projects in this area."

For this work, the big problem of the municipality is the drainage system. "We are attempting within the limits of our resources, and seeking these funds wherever possible, to help bring this population the respect it deserves. I am not going to succeed in resolving the problem. I am going to try to improve the situation, since to do this it takes money and getting the money takes a lot of political pull.

For him, the new municipality property register would be the only way to obtain more funds, since it could make an increase in taxes possible.

Nova Iguacu has a population of 1.5 million who live in a 776-square-kilometer area. Trash collection is done by a particular firm contracted by the Office of the Mayor but the mayor admits that the service is as yet rather unreliable since it takes care of only a small portion of the population: "To take care of the whole population with domestic collections we would need 60 trucks and many street cleaners and we don't have the funds for this."

Because of this, in almost all Nova Iguacu streets the wastelands are transformed into garbage dumps and in Belford Toxo, large quantities of this untreated refuse can be seen. To the mayor's way of thinking, it would be very difficult to put a stop to this because, "it is already a vice that is passed from generation to generation."

Nilopolis

Nilopolis is the smallest municipality in the Baixada Fluminense. It has a population of 160,000 inhabitants who live in an area of 9 square kilometers. The municipality's refuse dump is, as it has been for 7 years, at Rua Manoel Pinto Ribeiro, where countless families live while protesting its existence.

For Mr Simao Sessim, however, who was the mayor of the municipality until 1976, the big difficulty is the lack of space. He explained that this year, however, the problem would be resolved, "since we are signing a contract with Fundrem and with Comlurb agreeing to the building here of a sewerage treatment plant modeled after those in operation in Botafogo and Rio."

The final sewerage works, according to him, would be the metropolitan sewerage system that is already being used in Caxias in an area of INCRA. This sewerage plant, he accordingly explained, is also going to take care of Rio's needs which also is short of space for the final disposition of the refuse.

Domestic collection in Nilopolis amounts to 35 tons/day but the former mayor said that it could increase to 60 tons/day when the treatment plant is working. At present, despite the fact that the municipality is small, only 75 percent of the population is served with domestic collection.

The sewage problem, however, according to the former mayor, is difficult to solve. He said that a study of the subject had already been done and that it was sent to the State Superintendency of Rivers and Lakes and to Fundrem, and the hope is that funds will be forthcoming for the implementation of a basic sewerage plant for the municipality.

Other Sites

Niteroi and Sao Goncalo also have contributed toward the increase in pollution of the bay. These municipalities also have problems with trash and sewage. The Sao Goncalo dump has been singled out by the FEEMA technicians as "a problem case" and, in Niteroi the trash in the streets, chiefly in the center of the city, according to one of the members in the argument over pollution of the bay, has just been carried out to sea by the storm sewers.

The engineer with the State Company on Water and Sewage, Sidney Rosas Sa, said that the biochemical need for oxygen in the canals at the Avenida Ary Parreiras and Alameda Sao Joao Batista that flow into the Icarai beach is a much greater problem than is its own sewage problem that reaches the treatment plant. This means that the water in these two canals is much more polluted than Niteroi's own refuse.

In the southern zone of Niteroi, which comprises the sections of Icarai, Inga, Sao Francisco and Santa Rosa, there are approximately 135,000 people and the sewage from the region--200 liters/second, flows in its raw state into the waters of the bay, amounting to 17,280,000 liters/day.

The sewerage treatment plant that takes care of the region has been paralyzed since 1955. A new plant is being built at Rua Lemos Cunha, in Icarai, which, according to engineer Cedae, is going to take care of the population of the southern zone until 1995 when it is expected that about 300,000 people will be residing in the area.

With respect to the northern zone of Niteroi, authorities have no idea of when sewerage works could be achieved. Perto do Centra is the Barreto section, densely populated, with no sewerage plant. At Avenida do Contorno, in that section, the Marui River flows into the bay alongside the Ebin Shipyards and when it reaches the sea, the quantity of refuse mixed with the water is so enormous that it looks like a dump.

On the outskirts of Sao Goncalo and Niteroi the river Bomba flows, which originates in Tenente Jardim where there is a huge shantytown. A few meters before it reaches the bay, the filth is so plentiful that it begins to pile up.

Guanabara Bay also gets a good share of the region's industrial waste. There are countless fish-processing plants: the Rubi, Jangada, Coqueiro, Uniao and GB that dump waste products in the sea.

Elevators

In examining the shores of the bay from Praca Quinze in the direction of the port docks, one can immediately see feces "in natura" in the water from the Rodrigues Alves Elevator near the Navy Arsenal (39 liters/second).

Also there, close to the Mangue Elevator where 68 liters/second of untreated waste are dumped, the foul odor is intolerable. Then beyond this there is the Sao Cristovao Elevator that adds 420 liters/second and the Alegria, in Caju, that dumps in more than 375 liters/second.

Pollution even endangers navigation, according to pilot Reginaldo Andrade Damasceno, of the Empress Sermapi:

"This damages everything--the propeller, the motor--everything is damaged by the refuse in the bay. The bags get into the suction pump of the electrical system and the motor gets overheated, baking the connections, and the ship, when this happens, is paralyzed for 2 or 3 days by the breakdown," he explained. For him, it is even worse to sail at night or on rainy days, "since every time we find ourselves carrying immense loads of timber and with reduced visibility, the danger increases, and we can only proceed at a slow speed so the refuse doesn't jeopardize the trip."

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CS0: 5000

OIL SPILLS THREAT TO PERSIAN GULF

Teheran TEHRAN JOURNAL in English 24 May 77 p 3

[Article by Irfan Parviz]

[Text]

TEHRAN— Oil spills from tankers operating in the Persian Gulf are endangering the environment and precious sea life in the region, Dr. Eskandar Firouz, Deputy Prime Minister and chief of the Department of the Environment, said yesterday.

Littoral states of the Persian Gulf and the Sea of Oman will meet in June in Baghdad to sign an agreement to keep the region's waters clean, Firouz told a press conference.

Firouz pointed out that regional states had joined hands in a collective effort to avoid polluting the Persian Gulf and Sea of Oman at a meeting of environmental experts in Kuwait last year.

Experts of the littoral states again met in Bahrain last Jan-

uary to discuss the details of the proposed plans for fighting against pollution in the region, he said. There they signed a letter of intent identifying the areas of cooperation.

He said the proper authorities of the respective countries will sign an agreement in Baghdad to implement those plans.

Strict measures are being taken to stop the 'oil pollution,' which he described as one of the main causes of pollution in the region.

He said a law had been passed in 1975 in Iran to restrict the passage of ships and tankers creating pollution of any sort.

Technical assistance from other countries has been sought throughout this formative per-

iod in Iranian environmental research, he said. He cited the visit of the Atlantic II of the Woods Hole Oceanographic Institute in the United States which surveyed Persian Gulf waters in March this year.

Experts on board the ship discussed with Iranian scientists the level of pollution in the region in an exchange of "very valuable knowledge," Firouz said.

Iran will soon obtain a ship and an airplane to conduct detailed environmental studies of the Persian Gulf, Sea of Oman and the Caspian Sea, Firouz said.

An extensive agreement for cooperation in solving water pollution in the Caspian Sea has been reached with the Soviet Union.

CSO: 5000

USSR

ENVIRONMENTAL PROTECTION PROBLEMS IN YEREVAN

Yerevan KOMMUNIST in Russian 19 Sep 76 p 2

[Article by N. Kagramanov: "A Gulp of Air"]

[Text] A clean environment is becoming more and more important with each passing year for the residents of Yerevan. There are many institutions involved in resolving this problem--executive committees of city and rayon soviets, a number of ministries, scientific-research institutes, and social organizations.

Despite the efforts that have been made in our republic to improve environmental protection, there are substantial shortcomings in the work. We who live in Yerevan are especially cognizant of this.

Let us go out, for example, on Charents Street, go down along Nalbandyan Street, stroll along Kirov and Moskovskaya Street, Ordzhonikidze Prospekt, and Spandaryan Square. Let us pass along other streets as well and observe what's going on. It is noon. There is not much of a wind yet, but it is already raising clouds of dust. It is blowing trash, cigarette butts, dry leaves fallen from the trees, and scraps of newspapers.

At the same time, cars and trucks are speeding along in an unending stream, trailing clouds of exhaust gasses and dust. During the peak hours the traffic becomes so heavy that many drivers just drive anywhere they please, paying no attention to pedestrians, honking their horns constantly, and creating a general atmosphere of nervousness.

In some places there are trash heaps on the streets where people just any time bring paper bags, packets, and wooden and cardboard boxes filled with kitchen and household garbage. Incidentally, even the low-water Gedar River which flows through a number of rayon soviets of the city has also become a place to dump garbage, and these organizations have long since become resigned to it. How about construction sites? And buildings long since turned over for operation? Construction trash is still lying around many of them and has been for months.

What is the reason for such a sorry picture? We look through the decree of the Armenian SSR Council of Ministers dated 7 January 1976. Paragraph No 3 says: "Take note of systematic nonfulfillment of the construction-installation work plan, low-quality construction work, failure to meet deadlines set by the government for the commissioning of the first phase of the biological treatment facilities of the Yerevan Aeration Plant of the Armenian SSR Ministry of Industrial Construction, and unsatisfactory performance of the client's functions by the executive committee of the Yerevan city soviet."

The decree points out the unsatisfactory work of a number of other departments which have not taken the necessary steps to reduce environmental pollution. The Ministry of Automotive Transport has delayed in setting up a control station to check and reduce toxic motor vehicle exhaust gasses. Yet the equipment was delivered last year.

According to data of the GAI [State Motor Vehicle Inspectorate] in the city of Yerevan, the increase in automotive transport in the republic's capital city amounts to 10 to 12 percent every year. In a few years the number of motor vehicles will come to about 100,000. The operational performance of the engines in these vehicles is directly linked to the problem of Yerevan's air quality. In investigating this problem, specialists of GAI found that the toxicity of exhaust gasses from motor vehicles in our city substantially exceeds the norm.

"Can you perhaps explain the reason?" we asked the chief of the division of traffic organization of the city's GAI A. Dzhragatspanyan.

"The reason is that no control is being exercised by the technical managers of the motor pools and enterprises over the correct operation of vehicle engines. It must be admitted that for our part as well proper control has not been established over the toxicity of exhaust gasses. So far we do not have a diagnostic station; to this day not a single vehicle has been taken out of operation because its ignition and fuel systems are not in good working order."

Thus, it is because of the lack of control and the failure of GAI workers to perform their functions that the city's inhabitants have to swallow such quantities of exhaust every day. There is another surprising fact: Yerevan's GAI has 25 mobile portable devices to determine the toxicity of exhaust gasses, which can be installed on motorcycles and vehicles. But they are idle because the personnel are not technically trained.

To all of this we must add that in contrast to a number of other large cities in the country, Yerevan lacks a sanitation police, the presence of which could render substantial aid in strengthening the campaign against air pollution.

It is not just automotive traffic which pollutes the environment. Much of the "credit" in this regard also goes to the public utilities. Our city is being built up constantly, and we can be proud of that. But, as has been mentioned, many courtyards in new housing complexes have long remained cluttered with construction trash. Let us cite just one example. On the corner of Sar'yan Street, which opens out on Lenin Prospekt, three multi-story buildings have long since been turned over for operation. The courtyards are cluttered with broken stone, piles of sand, cement, and plaster. Clouds of dust rise up at the slightest stirring of the air.

It cannot be claimed that the city's streets are never swept up. From time to time you can see the solitary figures of the yardmen, sweeping the courtyards and sidewalks and gathering the trash into piles, which frequently remain several hours before being hauled away.

According to data from the administration of public utility enterprises and services of the executive committee of the Yerevan city soviet, the city has 760 yardmen. Many of them "serve" three or four sections apiece, sometimes in different parts of the city; they are entered on the rosters under other surnames. How do you get quality clean-up from that?

The cleanliness of a city and its environment is an indicator of the culture of its inhabitants. Thoughts on this subject led me to the deputy chief of the administration of utility enterprises and services of the executive committee of the Yerevan city soviet V. Zakharyan. He showed me photographs of mountains of construction trash with which some organizations are cluttering the city. Among them is Armtonnel'stroy [Armenian Tunnel Construction Administration]. Since the beginning of the construction of high-speed underground transport in Yerevan this organization has failed to haul rock from the drilling of tunnels and shafts to designated places, but has been dumping it on vacant areas and along the roads entering the city.

Considerable damage is done to the environment by dumps of industrial wastes from a number of enterprises (the chemical combine imeni Kirov, the Polivinilatsetat Plant, and the tire plant). For a long time the chemical combine burned some industrial wastes in the Sovetashen district, and sometimes the wind would carry the choking smoke to the city's residential areas. A year ago the enterprise was given a new place to dump its wastes, but this also proved unsuitable in terms of sanitation. And so? While a search is underway for a new area the combine continues to burn wastes at the old place in the Sovetashen district.

May we respectfully ask enterprise managers and workers of the executive committees of the rayon and city soviets how long the air has to be polluted and the city has to be cluttered with construction trash and industrial wastes? Why are Gossaninspektsiya [State Sanitary Inspectorate] and the city's Administration of Internal Affairs viewing all this with Olympian complacency? One gets the impression that the managers of these organizations only rarely go out into the streets and public places and do not take note of what is going on around them.

None of us is making adequate efforts for clean streets and for compliance with traffic regulations. There goes a cement truck, leaving a greasy white track behind it. A pedestrian tosses a cigarette butt. A dump truck operating on solar oil speeds into the center of town...everyone is silent, no one intervenes, as if no one were affected by it. We inhabitants of the city stand aloof. The keepers of public order stand aloof. No one is fined, or even given a warning. Indifference? Unwillingness to get involved? Not enough responsibility for one's assigned task; for the fate of our hometown? Yes, all three.

A gulp of clean air cannot be bought or sold. Can it be that this fact sometimes blunts our attention to the problem of a clean environment? It is as if everyone were accustomed to the fact that it is necessary to go out onto the street late at night for a breath of clean air, when there is no traffic, or at dawn, when the thousands of vehicles are not yet stirring.

The problem of a clean environment--air, water, and green landscaping of the streets and squares--is of vital social importance. We must not forget that clean air is sold only in science-fiction novels. But we need it every second in order to live and work.

6854

CSO: 5000

USSR

PROTECTING FISH RESERVES IN THE CASPIAN BASIN

Moscow LITERATURNAYA GAZETA in Russian No 18, 4 May 77 p 11

[Article by I. Nikonorov, member of the board of directors of the USSR Ministry of Fish Industry: "The Curve of Compromise"]

[Text] The USSR Ministry of Fishing Industry has discussed the article by A. Ozerov and M. Podgorodnikov entitled "The Curve of Compromise," published on 5 January of this year in this newspaper, and reports that the article correctly elucidated urgent problems relating to the use of water resources and the preservation of fish reserves in the Northern Caspian.

The Northern Caspian, with the Volga and Ural Rivers that empty into it, is a unique fishery. However, the fish industry there is now in an extremely unfavorable situation due to the inadequate amount of Volga River water, the decline of the spawning grounds, and the expanded scale of irrigated land cultivation on the Volga delta, the Volga-Akhtubinskaya flood plain, and pollution of the waters. Reserves of individual species of fish have declined by 15 to 20 times. In 1975 alone the loss incurred by the fishing industry due to the shortage of water in the spawning grounds came to 680 million rubles, and in 1976 it exceeded this amount.

The article correctly elucidates the situation developing with the construction of the water barrier on the Volga delta. Its commissioning in 1976, a year of low water, was held up due to the USSR Ministry of Land Reclamation and Water Resources' failure to complete reclamation work in the western part of the delta.

At the present time this unique structure has been accepted by the state commission, and plans call for commissioning the water barrier in 1977 for test operation. At present, before practical testing, it does not appear possible to evaluate the effectiveness of structures installed in the dam of the water barrier to allow fish through. In the event that sturgeon are trapped in the tailwater of the water barrier advanced plans call for moving them to the headwater. In this way it is possible to transfer about 80,000 sturgeon.

The authors of the article correctly focus attention on urgent problems of preserving spawning stocks on the Volga delta.

In order to strengthen control over the preservation of spawning grounds the USSR Ministry of Fish Industry has established a procedure in accordance with which it is permissible to enclose spawning sections with levees in the Volga-Caspian Basin only on authorization by Glavrybvod [Main Administration of Fish Breeding]. Fines are imposed on persons who illegally enclose these sections with levees, dam streams, or plow spawning areas. Suit is brought against organizations for any damage done to fish reserves.

The article correctly emphasizes that the effectiveness of fish industry measures, including the construction of the water barrier, is sharply reduced because of the expansion of rice farming in the delta, an operation which requires large amounts of water and involves the massive use of poison chemicals and herbicides.

The ministry supports the authors' opinion that it is advisable to combine fishing operations on the Volga delta with the development of livestock raising, using floodplain lands for hay fields and cultivated pastures.

For the preservation and reproduction of fish reserves in the Caspian basin, in the eastern portion of the Volga delta and the water area of the Northern Caspian a protected preserve zone has been established, where only fishing and water transport operations will be permitted to develop in the future. Compliance with this is to be supervised by fish protection authorities.

For purposes of preventing damage to fish reserves in the Caspian basin, USSR Gosplan's Gosekspertiza [State Review Board] has recommended that the USSR Ministry of Agriculture and the USSR Ministry of Land Reclamation and Water Resources examine the question as to prohibiting the further development of rice farming in the flood plain and delta of the Volga and correspondingly increasing the production of rice on the lands of the Sarpinskaya lowland. Gosekspertiza also considers it necessary to make use only of herbicides and poisonous chemicals that are quickly degradable on the flood plain.

The USSR Ministry of Fish Industry is in complete agreement with the opinion elucidated in the article "The Curve of Compromise" on the impermissibility of planning work in the lower Volga basin on the basis of individual temporary and local plans. This leads to lack of control in construction, to the expansion of farm holdings at the expense of spawning grounds, and to disruption of the water balance in the Northern Caspian.

Because of inadequate economic substantiation and serious defects, USSR Gosplan's Gosekspertiza on 8 December 1976 withheld recommendation for the approval of the "Plan for Integrated Use of Water, Land, and Fish Resources on the Lower Volga and the Ural and Akhtuba River and the Northern Caspian."

The planning and scientific-research institutes of the USSR Ministry of Fish Industry made detailed criticisms of the above-mentioned plan. They put

forth the fish industry's requirements on the preservation of optimal natural conditions in the region. The plan will be reviewed again by USSR Gosplan's Gosekspertiza.

In connection with the acute shortage of water it appears essential to pass a decision to restrict water consumption in the Volga basin and in the Northern Caspian.

The Ministry of Land Reclamation and Water Resources must comprehensively speed up the formulation of technical-economic substantiations for transferring water from northern rivers.

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CSO: 5000

GREECE

ILLEGAL LANDFILL OF SEA DETRIMENTAL TO ECONOMY

Athens TA NEA in Greek 28 Apr 77 p 5

[Article by G. Karalis: "Our Seas Are Being Pushed Back!"]

[Text] Hundred of acres of land along the seashore, worth hundreds of millions of drachmas, are being created through illegal or semilegal landfills to the detriment of the national economy and of the ecology, and are becoming the object of unimpeded private speculation.

As a result, the configuration of continental Greece is continuously changing, as land area gains over water through the system taught by the junta and accepted by democracy.

This is a system used by the large industrial combines to secure the land areas needed for the development of their installations.

And while this situation has assumed epidemic proportions, in many instances the state is displaying such indifference as to actually assist in the spread of the evil.

Only...Technically

It is characteristic of the situation that the Council for Public Works recently reviewed one of the most outrageous landfill cases solely from a "technical aspect;" in other words, it only did it to determine whether the study is technically correct and whether the amounts involved are exact, ignoring all other material aspects, even the fact that the industry busy with pushing back the sea since 1975 has no permit whatsoever from any competent authority!

Charges

The president of the Technical Chamber of Greece, Evang. Kouloumbis, is bringing very serious and specific charges in connection with this subject in a letter sent last week to the minister of public works, where he explains why, on 13 February 1977, he left the Council for Public Works, in which he is a TEE [Technical Chamber of Greece] representative.

In his letter, he charges that by now, it has already become a practice to contract for the services of a foreign technical advisor even for the most insignificant project, with the pretext that this is stipulated in the agreements related to those projects financed from abroad.

More specifically, Kouloumbis charges that only the formal aspect of the various cases is reviewed at the meetings of the Council for Public Works, while the substance is completely ignored.

This was the reason for his departure from the 13 February 1977 meeting, following his protest against this state of affairs and against the Council's methods, which do not serve the public interest.

The situation is liable to improve only through the intervention of the minister himself and development of the right spirit among ministry personnel.

Specifics

Switching to specific charges, Kouloumbis reports that:

Very often, studies for large port facilities projects executed by private firms are submitted to the Council for Public Works for approval.

Despite the fact that these projects very much affect the whole national economy as well as the environment, the Council for Public Works reviews the case only from a "technical aspect," while other significant facets, such as the following, are ignored:

- polluting the environment,
- ignoring the ecological system,
- determining whether the exploitation of large areas resulting from landfills or other type of works on the nation's shorelines is legal.

As an extremely characteristic example, Kouloumbis cites, among his charges, the submittal for approval of its technical aspects of a project proposal by the Neorios Syrou, Inc. company located in the region of the Syros port.

The proposal was related to three studies amounting to 198.5 million drachmas, for works which have been going on without a license ever since 1975!

Questions

These questions have arisen:

--How is it that for 2 years, such tremendous works requiring the use of large pieces of equipment and other machinery are being carried out on public land without a license? Is there no police control? Or is it that the law is not applicable to large companies?

--Why doesn't the Ministry of Public Works--which imposes fines for small infractions of the building code in the construction of poor people's residences,

or even razes them--apply the same procedures and penalties in the case of the Neorios Syrou Company?

Sixteen Others

Besides the above case, the TTE president also brings charges against these:

- Construction of a jetty by the Khalkis Cement Company, Inc. at Mikro Vathy Avlidos.
- Approval of the technical aspects of a study pertaining to the configuration of the seashore line for a hotel at Porto Kheli.
- Approval of the technical aspects of a study pertaining to landfill works carried out by Olympic Yachts, in the Panormos locality of the Lavrion area.
- Schematic draft for the port of Lavrion.
- Approval of the technical aspects of a study pertaining to dredging works in the Vathy Avlidos inlet.
- Approval of the technical aspects of a study pertaining to a landfill project in front of the AGET [expansion unknown] Olymbos, and construction of a breakwater to retain the landfills at the Agria Volou locality.
- Draft of an additional agreement on the report and general preliminary study for the western entrance to the Elefsina Gulf.
- Approval of the technical aspects of a study pertaining to the landfills carried out in the shallows of the Larymni Fthiotidos inlet, in front of the privately owned installations of Larco.
- Approval of the technical aspects of a study pertaining to port facilities works in the Sourpi inlet in the Almyros area carried out by Metallourgiki Khalyps, Inc.
- Approval of the technical aspects of a study pertaining to the configuration of the seashoreline of the Xenia Pallas Hotel at Kanoni Kerkyras.
- Approval of the technical aspects of a study pertaining to a breakwater for the expansion of the port facilities of Titan Cement, Inc., at Drepano Psathopyrgou Patron.
- Approval of the technical aspects of a study pertaining to dredging works at the Megalo Vathy Avlidos inlet, excavations of land areas, and landfills covering an area of 61,500 square meters, carried out by the Khalkis Shipyards, at a total cost of 50 million drachmas.
- Approval of the technical aspects pertaining to the construction by the DEI [Public Power Corporation] of conduits for oil and for sea water intended for refrigeration purposes, in front of the diesel-powered electric station of Limnos.
- Approval of the technical aspects of a study pertaining to the installation of conveyor belts for the loading of cement at the Elefsina breakwater.
- Approval of the technical aspects of a study pertaining to port facilities at the Porneri Korinthou locality carried out by Solinourgia Korinthou, Inc.
- Approval of the technical aspects of a study pertaining to port facilities at the Stavros Volou locality carried out by the AGET.

In all these instances, the review by the Council of Public Works was only a formality.

Foreign Advisors

Kouloumbis' second charge concerns foreign technical advisors, who are brought over for projects of very limited significance.

As a result:

--The country becomes dependent on foreign technology and is beholden to the special interests of the advisors' homelands.

--The services of Greek consulting firms and other such enterprises are not fully used or developed.

The usual reason invoked in favor of contracting for these foreign technical advisors is, supposedly, the fact that the World Bank, which provides the funds for some of the public works, so requires.

However, Kouloumbis disclosed that, in a special publication on rules and regulations, the World Bank itself mentions, in article 1.16:

"The Bank, by reason of its being a developmental agency, encourages borrowers to avail themselves of the services of consulting firm advisors of the same nationality as the borrower, whenever it is deemed that these firms have the necessary qualifications to satisfactorily carry out their assignments, either alone or in conjunction with foreign advisors, in which case the contribution of the local firms must be of the greatest possible extent."

A Right to Select

And further, in article 1.21:

"When borrowers use the services of advisers, the Bank generally delegates to the former the responsibility for the selection of such advisers, for the management of personal matters pertaining to them, as well as for their supervision. Borrowers are thus made fully aware that the selection of advisers is their own responsibility."

It must be noted that even in road maintenance projects, foreign technical advisors are brought over, with the pretext that it is a requirement of the World Bank, and receive large fees, even payable in foreign currency.

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TURKEY

ANKARA AIR POLLUTION SITUATION DISCUSSED

Istanbul POLITIKA in Turkish 19, 20 May 77

[Article by Erdogan Erkan: "Major Problem in Ankara's Air Pollution: Motor Vehicles"]

[19 May 77, p 6]

[Text] In developed countries where urban air pollution has been recognized as a problem requiring urgent solution for the health of society, continuous research into both sources of pollution and methods of prevention shows that even in some of the large industrial cities, motor vehicles are a major source of air pollution, contributing as much as 80 per cent of the total pollution. It, therefore, strikes us as interesting that in our capital city, where air pollution is known to have far exceeded the measure to make it a world first considering that it is not yet an industrial city, there is no due mention of the motor vehicle problem and practically no discussion of a technology to prevent automobile emissions at the source.

We believe that we are not far wrong in thinking that this attitude and behavior which has failed, even refused, to look at certain preventives that ought to be applied to our motor vehicles for the prevention of air pollution in Ankara, may arise as much from the failure to keep up with the science and technology of our time as from a simple lack of desire to deal with it.

Proposals Favor "Let the Polluter Prevent"

While there is some validity today in proposals which, in our country, make it easy to leave responsibility for such things as central heating, mass transportation, planting vegetation, or "smokeless coal" to the state, proposals favoring the principle of "Let the polluter prevent" where scientific tests can prove culpability are not being overlooked. It is interesting also that this attitude should coincide with the philosophy of gasoline consumption that calls for sales at prices much lower than the cost (to favor a specialized minority such as automobile owners and, to a degree, the automotive industry) to the state and for the Treasury to make up the difference. From this standpoint, it would probably not be incorrect to say that the

trend in our country is to think of the problem of motor vehicles, a significant factor in the war on air pollution, purely in terms of a "traffic problem."

In fact, while waiting for the "proposals concerned with traffic" that we have been able to keep track of to be studied and developed, like their prototypes in advanced countries, as proposals concerned with the pollution endemic to automobile technology, we are seeing these proposals presented in most cases with an inadequate and erroneous statement about "pollution created by traffic," which can lead to misconceptions and thus subversion of the true problem to a simple "traffic regulation problem."

Automotive Emission Control Technology

We would hope for proposals dealing with automotive emission control technology, which is concerned with automobile design and which in many countries today is obligatory for the automotive industry. The proliferation, instead, of proposals expressed in terms of "stepping up traffic regulation" or "penalizing drivers for adverse attitudes and behavior" is clear proof of the desire to deal with the true, basic problem as one of traffic regulation alone.

One Solution: Prevent Noxious Emissions At Source

However, the effect of traffic alone on the reduction of air pollution is not as much as might be thought, and cannot be when it has not been studied and considered in conjunction with the preventives that are our subject today. The pollution from which the true problem arises can neither be eliminated by "traffic flow" nor by preventives concerned with the "uneducated driver" spewing black exhaust because of an oversight or defect in his automobile, who speeds by pedestrians and gets them dirty. As for proposals such as "no construction of tall buildings in places where traffic is heavy" or "banning deisel engines in the city," we do not even consider them worth mentioning. The only realistic and intelligent solution is to prevent or reduce pollution and noxious omissions at the source.

The various proposals concerned with prevention of air pollution in Ankara are being tested against a criterion of conformity to a specific philosophy rather than of how accurately they reflect the facts or whether they are adequate, and ideas that fall contrary to special interests are being ignored. Thus, with respect to taking a realistic approach to the problem, it is imperative to point out that this practice has as much effect as lack of information and interest on the rise of air pollution in Ankara to a level where it may even be responsible for mass deaths today.

Problem Must Be Put On Realistic Plane

Factors that make motor vehicles the most important problem in pollution of the air in our capital:

We believe that our subsequent articles will be sufficient to redeem the approach to the problem of motor vehicles in air pollution from such inadequate and meaningless examples as the "Don't smoke while in an automobile" warnings that we saw during anti-pollution week in our country and to put the problem on a more positive and realistic plane.

It is our desire that these articles, which concentrate on our tendency and custom to always take the easy way as well as on the prejudices formed by successful tactics, would at least provide the background for a debate of the issue.

[20 May 77 p 6]

[Excerpt] At the Chamber of Mechanical Engineers' Conference on problems, Tanyolac Kozan, speaking on behalf of the organizers of the conference, said, "Winter has gone, summer has arrived, and Ankara is still living in smoke and fog. This smoke is poisoning all of us a little bit more every day," and he pointed out that this pollution is constantly present in almost every season. This strikes us as a truth which ought to be the basis of the search for sources and efforts toward prevention of the pollution in Ankara. There is a continuous, never before equalled, source of air pollution in Ankara today, aside from the conditions produced by hot weather, which threatens the public health summer and winter and which is by nature invisible and imperceptible to the public, and seeking the cause of it in the chimnies is sheer blindness.

Sole Cause of Pollution: Motor Vehicles Lacking Automotive Emission Controls

Considering, from this standpoint, the information we have been able to glean from publications and reports and the practices we have observed, we would like to say, in particular, that the the single most dangerous, and continuous, cause of air pollution in Ankara is our motor vehicles, which are designed without automotive emission control systems. Moreover, this is a plain and simple fact which for Ankara can be derived by logic in that it is unnecessary to seek sources of summer pollution other than automobiles (since the capital is not yet an industrial city.)

However, though it is necessary in measuring and evaluating air pollution to seek out the amounts and proportions of pollutants and toxic materials in the air according to source, it usually leads to mistakes in the knowledge and pursuit of the facts in the problem if we concentrate only on the pollution that we can see with our eyes or that stifles us the moment a window is opened.

The distinguished Prof Nejat Aybers pointed up the short-sightedness and inadequacy of this way of looking at the problem in 1969 when he said, "Pollution is a perception, not a dimension," and the fact that this approach even today may be the single most important reason not only for public misapprehensions, but also for the irresponsible attitude of the authorities is certainly a consequence that only the conditions unique to our country could create.

Factual Discovery by TUBITAK

According to information obtained from a series of studies on Ankara's air pollution conducted by the Turkish Scientific and Technical Research Organization [TUBITAK] in 1969, motor vehicles won hands down as the major polluter, with a total of 87,000 tons of emissions (containing 10 per cent sulfur dioxide, 45 per cent nitrogen oxides, 63 per cent hydrocarbons, and 77 per cent carbon monoxide), accounting for 46 per cent of total emissions.

The firm conclusion reached by these studies, conducted by the respected TUBITAK, as stated in the introduction to the report, "shows that the role of motor vehicles in the pollution of Ankara's air is much greater than heretofore believed, and studies for the future show that this role can only increase."

Without doubt, this fact has become even more poignant today, considering that it was based on conditions in 1969 and that motor vehicle use has grown steadily in the intervening 8 years (because automobile assembly and domestic consumption have been encouraged by every means possible as an indication of our development, industrialization, and modernization, though on what economic, social, or even technical rationale is not known).

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END